

REMARKS

The Examiner is thanked for the allowance of claim 39. The claims have been amended to recite that the lower level of the F is "8.4 mass%". This lower limit is supported by Example 71.

Claims 9, 11 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kasori et al. (Kasori).

Reconsideration is requested.

The glass disclosed by Kasori is a glass is intended for use in coating optical fiber and is distinctly different from the claimed glass. In the glass disclosed by Kasori, when the amount of F exceeds 3%, phase separation occurs in the glass which causes the glass to become opaque (col.2, lines 60-63). For this reason, the amount of F in the Kasori compositions is limited to 0-3%. However, in the claims of the present application, the amount of F in the claims is 8.4-11 mass% which is a range that is not made obvious by the Kasori glass compositions.

The present invention is concerned with providing an optical glass having a very small variation in the refractive index by employing F in the range of 8.4-11 mass%. Kasori uses the F component only for the purpose of providing a low refractive index and low viscosity in a glass composition. The maximum amount of F in Kasori is 2.58%.

The claimed optical glass of the present invention is based on the introduction of a relatively large amount of F which was not considered possible in the past. This large amount of F results in a glass having a very small variation in refractive index caused by the compaction phenomenon. The Kasori patent is not concerned with the addition of a large amount of F and for this reason, it does not provide a reason for increasing the amount of F in a glass composition. For these reasons, it is requested that this ground of rejection be withdrawn.

Claims 14, 15, 17-20, 22-25, 27-30, 32-35, 37 and 38 were rejected under 35 U.S.C. §103(a) over Beguin.

Reconsideration is requested.

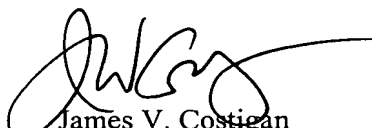
The glass disclosed in the Beguin patent becomes opaque when the amount of F exceeds 5 wt% (page 4, lines 20-22) and, for this reason, the amount of F is limited to 5 wt% or below. In contrast, the optical glass of the present invention contains F in the amount of 8.4 – 11 mass %, which is a range that is not made obvious by the Beguin patent.

The object of the present invention is to provide an optical glass which has a very small variation in refractive index caused by the compaction phenomenon. This result is achieved by restricting the amount of F to the above described narrow range.

In the Beguin's glass, the F component is only added for the purpose of melting and refining the glass and to adjust the refractive index of the glass and improve the ion exchange properties of the glass. It should be noted that Beguin's examples contain F in the amount of 5 wt% at most which do not make obvious the use of higher amounts of F. In addition the Beguin's glass is directed to an optical element which amplifies a light signal and requires the presence of Er and Yb as essential components for achieving these properties. However, the presence of Er and Yb components increase compaction and causes a deterioration in transmittance. Therefore, this reference does not make obvious the invention as defined by the amended claims which require the F content to be from 8.4 to 11 mass%. The optical glass of the present invention is based on the discovery that the introduction of a relatively large amount of F, which was considered impossible in the past, is made possible by the adoption of a specific range of glass forming ingredients that form a glass having a very small variation in refractive index caused by the compaction phenomenon.

For these reasons, it is requested that this ground of rejection be withdrawn.

Respectfully submitted,


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